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Analysis of social and environmental practices related to conscious consumption of students from public education of Sertão Pernambucano, Brazil

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ABSTRACT. This research aimed to analyze socio-environmental practices related to the conscious consumption of students of Sertão Pernambucano. A total of 174 high school students from two public schools were interviewed through a 29-item Likert-type measurement scale with five response levels. Among the students, 62.4% were female and 37.6% were male, aged between 15 and 20 years. It was found that 5.8% of the students were careful to take into account if the product residues were recyclable, 40.0% showed indifference or little commitment to use as few shopping bags as possible and the minority (8.3%) of the students used to separate the waste by categories. 47.9% of the students affirmed to reuse draft paper and 55.9% save gift paper for future packaging. Few have the habit of watching (24.8%), talking to friends (12.9%) or alerting people (23.2%) about environmental problems or news. Therefore, Environmental Education, particularly, habits related to conscious consumption, needs to be inserted in the school context so that socio-educational actions become a daily practice, improving the expectations of future generations.

Keywords: human activity, education, sustainability.

Análise de práticas socioambientais relacionadas ao consumo consciente de estudantes do ensino público do Sertão Pernambucano, Brasil

RESUMO. Essa pesquisa objetivou analisar as práticas socioambientais relacionadas ao consumo consciente de estudantes do Sertão Pernambucano. Foram entrevistados 174 estudantes concluintes do ensino médio, de duas escolas públicas, por meio de uma escala de medida constituída por 29 itens no modelo da escala de Likert com cinco níveis de respostas. Dentre os estudantes, 62,4% eram do gênero feminino e 37,6% do masculino, com idade entre 15 e 20 anos. Verificou-se que 5,8% dos estudantes levam em conta se os resíduos dos produtos são recicláveis, 40,0% demonstraram indiferença ou pouco compromisso em utilizar o mínimo possível de sacolas nas suas compras e a minoria (8,3%) dos estudantes separava o lixo por categorias. Os estudantes (47,9%) alegaram reutilizar papéis para rascunho e 55,9% papel de presente em embalagens futuras. Poucos têm o hábito de assistir (24,8%), conversar com os amigos (12,9%) ou alertar pessoas (23,2%) sobre problemas ou notícias ambientais. Com isso, na Educação Ambiental, particularmente, os hábitos relacionados ao consumo consciente precisam ser inseridos no contexto escolar para que ações socioeducativas se tornem uma prática cotidiana que melhore as expectativas das gerações futuras.

Palavras-chave: atividade humana, educação, sustentabilidade.

Introduction

Negative consequences of the great industrial expansion promoted the social understanding of the need to unite the themes environment and education (Ferreira, 2013) in favor of a practice that sensitizes the human being to a harmonious relationship with the environment and its natural resources.

Current environmental disasters have forced us to rethink our way of interacting with the environment. Conscious consumers seek the balance between self-satisfaction and environmental protection, reflecting how their actions as a consumer can harm themselves, the next generations and the environment (Lins, Cavalcanti, & Faria, 2011).

Human behavior, including ecological behavior, is a result of learning, so there is a possibility of attitudinal changes and improvements in our environmental behavior, which warns of the need for new actions addressing this issue (Alves Filho & Ribeiro, 2014).

However, for improvements acquirement, it is essential to change the responsibilities of both the producer and the consumer, since excessive consumption is harmful to the environment (Silva, Czykiel, Figueiró, Santos, & Galvão, 2013).

In this context, arises the need for Environmental Education, which encompasses the methods by which human beings (individual and collective) construct their values and capacities directed towards the conservation of the environment, and this must be present at all levels of education as a transversal theme (Brazil, 1999).

Environmental Education provides citizens with the necessary criticality to face the daily and future adversities related to environmental problems, raising their awareness for sustainable development (Tozoni-Reis & Campos, 2014; Piato, Rezende, Lehfeld, Fajardo, & Rezende, 2014).

Sustainable development is a possible long-term process and education must act on individuals in the understanding phase of their attitudes, to form individuals with reflexive and critical thinking (Silva & Gomez, 2010).

Thus, it becomes indispensable to integrate them into the school environment, enabling students to understand environmental issues, addressing their various physical, political and social aspects (Souza, Machado, Reis, Santos, & Dias, 2013).

The objective of this research was to evaluate the socio-environmental behavior related to conscious consumption in students from the public education of Sertão Pernambucano.

Material and methods

The research was developed in two Reference High Schools (RHS), namely: Teresa Torres School and Oliveira Lima School, located in the municipalities of Itapetim and São José do Egito, respectively, both in the state of Pernambuco (Figure 1). The municipalities are located in the macroregion of Sertão Pernambuco and in the microregion of Pajeú; Itapetim has a territorial area of 408.0 km², with population of 13,881 inhabitants and São José do Egito has a territorial area of 794.1 km² and an estimated population of 33,365 inhabitants (Instituto Brasileiro de Geografia e Estatística [IBGE], 2016).

The sample size was defined as the total number of students enrolled in the schools (Total population at each school: n = 336 and n = 405, respectively), considering a sampling error of 10% (Rocha, 1997). Then, the sample consisted of 77 students graduating from the Teresa Torres School and 97 students from the Oliveira Lima School.
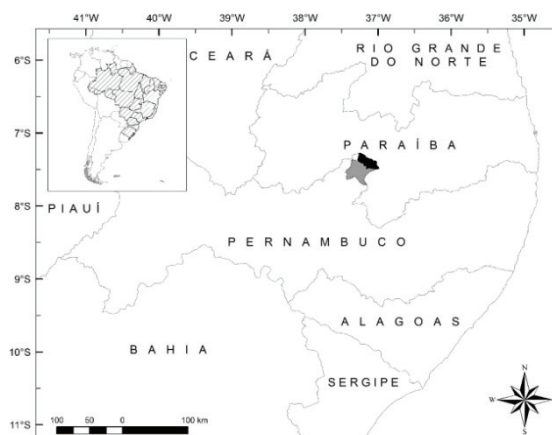
Figure 1. Geographic location of the study area. On the right, in black, the municipality of Itapetim, in gray, São José do Egito, Pernambuco State.
Source: the authors.

Information was collected in the first half of 2015 through the application of a Likert-type measurement scale adapted from Guler and Afacan (2012), consisting of 29 items, with 5 levels of agreement ranging from strongly agree (level 1) to strongly disagree (level 5). The items dealt with aspects related to conscious consumption (Table 1).

It was necessary to validate it for application to students, since they have profiles and ages that differ from the sample group treated by Guler and Afacan (2012), who applied it to teachers.

Therefore, the validation of the questionnaire as to its reliability was performed through α-Cronbach test and item-total correlation analysis, for each item of the scale, where items with correlation lower than 0.350 were excluded for better internal consistency of the scale. For this validation, the questionnaire was applied to a sample of 89 students and SPSS 13.0 software was used.

The α-Cronbach found for the scale applied to a sample of 89 students was satisfactory (α = 0.78), notwithstanding, the item-total correlation ranged from 0.015 to 0.524, where low correlation values suggest scale inconsistency and, probably, these items add inconsistency to the set of data that the scale is intended to evaluate. Thus, 13 items with correlation lower than 0.350 were excluded (Table 1).

The exclusion of a significant number of items was predicted, since the scale, originally validated for teachers, had many items that do not apply to the profile or daily life of the student. After exclusions, α-Cronbach's was reported as 0.81, confirming the reliability and consistency of the 16-item scale.

Table 1. Items of measurement scale applied in the research (Guler & Afacan, 2012) and its item-total correlation values. In bold, items not excluded (values > 0.350)

item	Affirmative	Correlation
i1.	I prefer walking very short distances to driving.	0.233
i2.	I turn off the lights if I am the last one to leave a room.	**0.369**
i3.	I do not hesitate to warn anyone who damages the environment.	0.045
i4.	I follow magazines and newspapers on environmental and natural issues.	**0.497**
i5.	Before I buy a product, I take into account whether its waste is recyclable or not.	**0.425**
i6.	I make an effort to put what I buy during shopping into as few bags as possible.	**0.480**
i7.	I buy battery devices that can be recharged instead of those that run on cell battery.	**0.398**
i8.	I watch and listen to environmental programs on TV and radio.	**0.424**
i9.	I do not leave the tap on while brushing my teeth or washing my hands.	0.239
i10.	I buy environmentally-friendly personal care products.	0.283
i11.	I buy electrical appliances (phone, laptop, white goods) that use less electricity.	0.320
i12.	Before I vote for any politician, I take his/her attitudes towards the environment into account.	**0.437**
i13.	I divide waste into certain categories, such as paper, glass, plastic, etc.	**0.353**
i14.	I keep used pieces of paper as scrap paper.	**0.356**
i15.	I prefer to buy environmentally-friendly products even if they might be more expensive.	**0.468**
i16.	I talk with my friends about environmental issues.	**0.486**
i17.	I do not put electrical appliances (TV, printer, etc.) on stand-by.	0.184
i18.	I turn off the computer if I do not intend to use it for a few hours.	0.242
i19.	I forward any message or e-mail about environmental issues to my friends.	**0.386**
i20.	I use both sides of paper for copying and photocopying.	**0.360**
i21.	I wash my clothes in the washing machine without prewashing unless they are too dirty.	0.336
i22.	I use goal-oriented detergents to clean my home.	0.266
i23.	I share messages and videos about the environment on social networking sites (Facebook, Twitter).	**0.418**
i24.	I use permanently-used glasses, plates, forks and knives rather than disposable ones.	0.015
i25.	I put empty glass bottles into recycling bins.	0.324
i26.	I give away any products like furniture and clothes that I do not want to use anymore to someone who might need them.	0.246
i27.	I keep wrapping paper used for presents for prospective users.	**0.360**
i28.	I use energy-efficient lambs at home.	0.239
i29.	I remember warning people about their damaging behaviors towards the environment.	**0.424**

Source: Adapted from Guler and Afacan (2012).

The validated measure scale (16 items) was applied to 174 students, being 62.4% (n = 109) females and 37.6% (n = 65) males, aged between 15 and 20 years. Among them, 76.4% (n = 134) always studied in a public school.

The study of gender and possible differences in the profile of students between the two schools surveyed was also carried out. For such, a Mann-Whitney test was used, considering a probability level of $p < 0.05$.

Survey was conducted and complied with current rules for research involving human beings in Brazil, approved by the Ethics Committee on Research of Alcides Carneiro University Hospital at the Universidade Federal de Campina Grande (CAEE: 60636816.3.0000.5182).

Results and discussion

Results of students' responses are described in Table 2. There were no statistically significant differences in the responses of the students of the two schools surveyed.

Respondents (51.6%, n = 90) strongly agreed with the attitude of turning off the lights when they are the last to leave. By adopting this behavior, students demonstrate that they are aware that actions toward the environment, albeit on a small scale, exert influence at the global level, and build their environmental responsibility accordingly. However, aggregate cost to use electric energy can be important motivator for its rational consumption.

Currently, much Brazilian electricity is produced by hydroelectric plants. Thus, conscious energy use could avoid high environmental impact resulting from new plants (Reis, 2014).

The students (52.4%, n = 91) ensured that they were between "very" and "totally" interested in reading about environmental issues, thus revealing that approaching environmental issues in the classroom through current subjects could be welcomed by the majority of students. Nonetheless, it is still a percentage that shows the need for greater motivation and insertion of environmental themes in the school so that the interest for information on current environmental problems is a habit of the students' daily life.

Only 5.8% (n = 10) of the students claimed to take into account, before the purchase, whether the product residues are recyclable or not, showing that they do not understand how important the role of recycling is in preserving the environment.

Analyzing factors such as the possibility of recycling is indispensable during a purchase, since the use of these materials in the production cycle contributes to the reduction of environmental impacts (Strieder & Tobaldini, 2012), both in the saving of raw material and in the generation of solid waste.

However, as solid waste generation is continuous, it is necessary to require the public and private power to provide conscious management and adequate final destination (Paschoalin Filho, Silveira, Luz, & Oliveira, 2014). There is also a need for new approaches on Environmental Education to work on socio-environmental values and knowledge on this emerging issue.

Table 2. Frequency (%) of attitudes for each level of the sustainability scale on socio-environmental practices related to the conscious consumption of students of the RHS Teresa Torres, municipality of Itapetim, and RHS Oliveira Lima, municipality of São José do Egito, state of Pernambuco.

Item	Affirmative	1	2	3	4	5
i2.	I turn off the lights if I am the last one to leave a room.	51.6	30.1	9.2	5.3	3.8
i5.	Before I buy a product, I take into account whether its waste is recyclable or not.	5.8	19.5	26.5	22.2	26.0
i6.	I make an effort to put what I buy during shopping into as few bags as possible.	32.9	27.1	22.2	10.3	7.5
i7.	I buy battery devices that can be recharged instead of those that run on cell battery.	27.7	21.5	21.2	7.1	22.5
i12.	Before I vote for any politician, I take his/her attitudes towards the environment into account.	23.0	36.1	26.2	9.6	5.1
i13.	I divide waste into certain categories, such as paper, glass, plastic, etc.	8.3	25.1	18.1	24.6	23.9
i14.	I keep used pieces of paper as scrap paper.	47.9	28.3	13.8	6.8	3.2
i15.	I prefer to buy environmentally-friendly products even if they might be more expensive.	11.4	25.1	31.6	16.8	15.1
i20.	I use both sides of paper for copying and photocopying.	35.3	27.4	15.9	11.8	9.6
i27.	I keep wrapping paper used for presents for prospective users.	55.9	23.0	12.2	2.7	6.2
i29.	I remember warning people about their damaging behaviors towards the environment.	23.2	37.1	22.2	9.3	8.2

Caption: 1 - completely agree; 2 - partly agree; 3 - Neither agree nor disagree; 4 - partly disagree; 5 - strongly disagree. Source: the authors.

Of the participating students, 40.0% (n = 70) reported having an attitude between "indifference" and "no effort" to use as few bags as possible in their purchases. Thus, a significant percentage of the students still do not get involved to minimize this environmental problem.

Considering that a plastic bag, like other polyethylene derivatives, can take more than 100 years to degrade in the environment (Viana, 2010), it is essential to educate the student to raise awareness about this problem, making important to perform actions related to the reduction and reuse of plastic bags (Santos, Freire, Costa, & Manrich, 2012).

Regarding the use of batteries, 27.7% (n = 48) of the total interviewees opted for rechargeable batteries in detriment to the others, even though it is a high percentage, it is still worrying, since 22.5% (n = 39) prefer batteries that cannot be recharged. These results show students are not aware of consequences of use and destination of these products, probably motivated by economic issues. According to Rocha (2011), company/consumer involvement is related to cost-benefit and not to damages caused later. This research reports value and brand as factors influencing consumer. This emphasizes lack of Environmental Education.

Technological advances generate too much waste and, inadequate disposal of these materials is harmful to human and animal health, in addition to polluting soils and groundwater, given the toxic substances present in their composition (Vianna, 2015).

Xavier, Silva, and Almeida (2016) reported the effectiveness of the insertion of Environmental Education in school, where, after clarification through a didactic experience in Environmental Education, there was a better understanding of students on issues related to solid waste.

To improve this scenario, we must recognize that consumerism has affected and degraded the environment and, consequently, reduced the quality of life. For the transformation of the actions of these individuals, it is fundamental the transmission of information arguing the theme.

Of the students, 59.1% (n = 103) took into account, at some level, the environmental attitudes of politicians before choosing their vote. There was a positive involvement in this issue, but 40.9% (n = 71) of the students were still somewhat indifferent, indicating their ignorance of the power of politicians to preserve the environment.

Political representatives committed to environmental preservation and conservation are fundamental for sustainable society, since new environmental policies normalize environmental actions by minimizing unsustainable use of natural resources. In Brazil, a political impasse and lack of decision-making is the National Solid Waste Plan (PNRS), which took about two decades to be sanctioned in 2010. This is a fundamental Plan for regulating on how we should manage solid waste. However, lack political force impairs the Plan to be approved more briefly.

In addition to public policies, citizens need to be aware of a more harmonious relationship with the environment. Thus, they will increase their critical reflection when buying and/or consuming products and promoting more environmentally friendly products. Consumer will favor an ecologically more viable production system.

Barros (2015), through analysis in parliamentary websites, shows that 62.5% (n = 20) of the Brazilian parties include environmental topics in their proposals. This exposes that there are methods to investigate the posture of politicians before the election and thus choose that one which involves the environment in his/her proposals, taking into account that the elected candidates will be able to make choices to diminish environmental degradation.

It was found that only 8.3% (n = 14) of the students used to separate the waste by categories, while 48.6% (n = 84) did not have this practice as usual routine. The data reported that students are

not clear on their obligations to the environment. Here, then, emerges the need for the insertion of Environmental Education in the school to empower the students and possibly make them environmental educators of their community (Brum & Silveira, 2011), multiplying the knowledge and importance of recycling.

This idea is confirmed by Souza et al. (2013), who, from lectures and practices on the adequate management and recycling of solid waste in public schools in the city of Cruz das Almas, Bahia, observed high interest and participation by both students and school employees, and verified the positive contribution of the activities carried out in raising awareness among all school personnel.

The students (47.9%, n = 83) claimed to reuse draft paper and 55.9% (n = 97) ensured the reuse of gift paper in future packaging. Environmentally correct practices should be part of the school routine (Brum & Silveira, 2011), among which is the reuse of paper.

However, according to research by Peixoto, Lima, Santos, and Calegaro (2013), carried out with lecturers and students in university courses, participants showed more ease in talking about paper production than about its reuse, recycling or proper disposal. Thus, the lack of knowledge or the inability of teachers to discuss this topic may reflect in a mediation of limited or absent knowledge for students.

About one third of the students (31.6%, n = 55) declared to be indifferent to the ecologically correct products when they are more expensive, denoting that the financial factor is a priority since adolescence and that the concern with the environment in which they live is in second plan.

Such posture was shown to have a greater amplitude in consumers of the city of São Paulo; according to a survey, 70% of the interviewees fail to buy an ecologically correct product if it is more expensive, confirming that the price strongly influences the consumer decision. The work also shows that the higher the income, the greater the number of ecologically correct products consumed, and points to a lack of information on the subject (Brazil, 2008).

It is known that reducing consumption is a good strategy in the conservation and/or preservation of the environment. In this regard, 35.3% (n = 61) of the students claimed to use both sides of the printing paper or xerox. We need to focus on actions that demonstrate to students that such small attitudes are essential and part of their duty, so that sustainable development can be achieved.

Paper reuse can minimize environmental impacts of its production and reduce costs of its acquisition by consumers; that is, economic bias can favor conscious consumption. However, main motivation for sustainable consumption in a sustainable society with environmentally conscious citizens must be respect and zeal for environment.

Regarding solid waste, Fidelis (2013) reported results different from those found here, where only 4.4% of the students were concerned about reducing waste production.

Communication and dissemination is essential in the multiplication of ideas, but the students did not practice it in the ambit of Environmental Education. Only 23.2% (n = 40) reported alerting people about environmental problems or news. Few of them claimed to exchange messages about environmental issues via e-mail (21.4%, n = 37) or social networks (35.8%, n = 62), being more frequent watching/listening to programs (55%, n = 96) or doing some reading in the area (52.4%, n = 91; Figure 2), or still talking with friends about the theme (42.4%, n = 74).
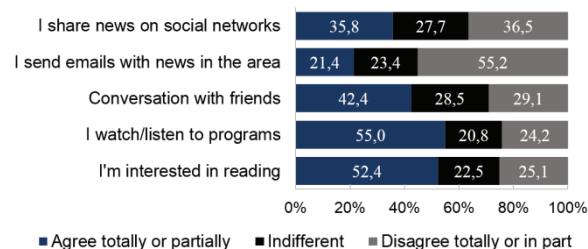
Figure 2. Frequency (%) of students' responses to statements related to their sources of information and the ways they convey environmental issues.

Rosado and Tomé (2015) present similar data in their research with Brazilian and Portuguese students, where students (Portugal: 91%; Brazil: 93%) reported having online profiles, but showed little use of technologies for propagation of the theme.

These results demonstrate the need for the inclusion of Environmental Education in schools, so that, from appropriate and continuous methodological interventions, students can complete high school with a critical education, more aware of the importance of their participation in the environmental issues of their community.

Conclusion

High school students from Itapetim and São José do Egito, Pernambuco, reveal a socio-environmental

behavior that requires educational actions for them to become more sustainable regarding their attitudes related to consumption.

Few of them demonstrate more environmentally conscious actions on their solid waste production, especially in relation to sharing information on environmental issues. However, they present more environmentally satisfactory actions in terms of reuse.

Individual actions aimed at conscious consumption are still lacking in student practices, except when financial bias dictates reduction of consumption. Social practices (conversations, reading, use of media and social networks) for exchange environmental knowledge are also insipient.

The insertion and functionality of Environmental Education in schools becomes indispensable in order to provide criticality in the training of students, enabling a change of conduct and an improvement in the development of these students as citizens aware of their actions.

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